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Woody Plants
for Shady Places

R. W. Curtis and J. F. Cornman

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Woody Plants for Shady Places

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SHADE on a part of the home grounds is pleasant and desirable, but may present some problems in planting ornamentals. A few woody plants thrive in the shade, but a large number merely *tolerate* it. While the lists given in this bulletin are not complete, the plants suggested are some of the best for shady places. All will tolerate shade and are hardy in central New York unless otherwise noted.

SHADE, TREES, AND SOIL

THERE are many degrees of shade, and the lines of separation are not exact. In partial shade, where sunbeams may filter through the cover or where there may be direct sunlight part of the day, the problem is not too difficult if shade-tolerant plants are selected. This is true also of shade from buildings and walls, where there may be little light but where other conditions are favorable. Dense shade, as under the low-hanging branches of the beech and Norway maple, is a much more difficult situation. Here the lack of light is complicated by a soil made dry by the direct competition of the tree roots for moisture, and even the most tolerant plants may fail.

A plant in the shade is so handicapped by lack of light that all other growing conditions should be as nearly ideal as possible. Some plants are found in nature in an acid soil, others in a moderately wet soil, and still others in a dry soil. These soil requirements must be met before the plants have much chance to survive the handicap of little light.

Except for plants that actually grow better in shade, few bloom and fruit so well in shade as they do in sun. Neither will their autumn color be so pronounced.

PLANT GROUPS

FOR convenient reference the discussion of different situations have been grouped as follows:

Shade and acid soil.

Shade and dry soil.

Shade and wet soil.

Shade and normal soil.

After each discussion is a list of plants that either prefer or tolerate such conditions. The flower and fruit characters of each plant are recorded, as

are other characteristics of special interest. Rare indeed is the plant without a single fault; and, if a selection is not to end in disappointment, these peculiarities should be considered before some plants are chosen. Since forwarned is forearmed, notes (*caution*) have been inserted in the lists as a guide to those who may be unacquainted with all of the habits of these excellent plants.

Grass for shady places is discussed on page 27, for this problem often accompanies that of selecting woody plants.

NAMES USED

ALL names follow Liberty Hyde Bailey's *Manual of Cultivated Plants* (1949).

SHADE AND ACID SOIL

NEARLY all of the plants recommended for shade and acid soil belong to the Heath family (*Ericaceae*). These ericaceous plants usually are in the wild in an acid soil that is cool, moist, and filled with humus or decaying organic matter. These conditions should be reproduced as nearly as possible if plants of this sort are to thrive as ornamentals.

In soils that contain only a little lime, the plants can be grown without great difficulty if the soil is properly prepared. In soils with large amounts of lime, as in many of the best general-farming regions, the problem becomes more difficult and the task more laborious. Here the average homeowner probably will do well to leave the growing of these plants to the more enthusiastic hobbyists.

Soil preparation

Acidity is expressed in terms of pH. A soil with a pH of 7.0 is neutral in reaction; one with a pH of 7.1 or above is alkaline (the higher the pH, the more alkaline the soil), and a soil with a pH of 6.9 or below is acid (the lower the pH, the more acid the soil). The approximate pH of a soil can be determined easily with one of the inexpensive soil-testing outfits now on the market. These tests involve the color change in a special liquid after it has been in contact with a small sample of the soil. Each testing outfit contains the simple directions necessary. In using one of these outfits, one must follow carefully the directions for selecting a truly representative sample from the bed. A soil with a pH of 4.5 to 6.5 is acid enough for such plants as rhododendrons.

If the acid-soil bed is to be made in a heavy alkaline clay, all of the soil must be removed to a depth of at least 1 foot. Drainage must be good natu-



FIGURE 1. A TYPICAL PLANTING IN SHADE AND ACID SOIL

rally, or must be made good. A simple test to estimate soil drainage is to dig one or more post holes about 3 feet deep and to fill the hole with water several times. If the water drains away slowly, taking a half day or more to disappear, drainage is poor enough to need serious correction. If the water disappears continually in less than three minutes, peat moss, or some similar material should be added to increase the water-holding capacity of the soil. To improve drainage, a tile drain is laid about 2 feet below the soil surface and led into a dry well or natural drainage outlet. The bed is filled with rich, acid, woods soil which contains plenty of humus. If woods soil is not available, a mixture of a good neutral or acid garden loam with from $\frac{1}{3}$ to $\frac{1}{2}$ by volume of rotted oak leaves, pine needles, acid peat moss, acid muck, or sedge peat, may be used. Of these, fibrous acid peat moss is preferred.

Addition of such chemicals as sulfur or aluminum sulfate, 2 pounds to 1,000 square feet, to soils may help to modify the acidity where only slight changes are needed in sandy soils. The use of fibrous acid peat moss is preferred both as a soil amendment and as a mulch for growing shallow-rooted ericaceous materials, such as rhododendron, where cool moist soils rich in organic matter are of prime importance.

Rhododendron and other ericaceous plants often develop leaves yellowish in color except for green veination. This condition is usually characteristic of iron deficiency in the leaves so affected. Improper soil conditions usually are the primary cause and must be corrected before there will be any permanent improvement. Sprays of ferrous sulfate (1 per cent solution of powdered ferrous sulfate, 2 ounces per gallon) applied to young foliage bring about temporary relief. Other formulations of iron may be used but appear less effective in tests with rhododendrons. Sprays should be applied in cloudy weather or in the evening. Sprays are effective only

on young foliage and must be repeated as new leaves develop. Little improvement is found following applications of ferrous sulfate and the like to mature foliage. Ferrous sulfate or ammonium sulfate may be applied to the soil at the rate of 1 pound to 100 square feet with somewhat more lasting results than from sprays applied to the foliage.

Artificial Mulch

An artificial mulch on the surface of the bed is needed to maintain a constant supply of moisture and a low soil temperature in summer. This mulch is kept on the bed throughout the year, additions being made each fall to compensate for the older material that has decomposed.

The foliage of broad-leaf evergreens exposed to drying winds or bright winter sun may suffer from winter burning (drying to death). These plants should be mulched during the autumn to prevent the soil from freezing deeply and should be watered thoroughly to keep the soil from going into the winter too dry. These difficult exposures should be avoided if possible or alleviated either by natural tree groups or inconspicuous windbreaks for shelter or by artificial winter cover of pine boughs or other appropriate green material.

Oak leaves, acid forest litter, acid peat moss, acid muck, sedge peat, and sawdust may be used as mulch material with good results. Maple leaves are less desirable for an acid-soil bed because they tend to pack badly, and they leave a less acid residue than do oak leaves and similar materials.

Water

The continued use of "hard" water, or water that contains much dissolved lime, gradually makes an acid soil more alkaline. Where this tendency is pronounced, it may be worthwhile to use cistern water if it is available or to catch rainwater for use during periods when watering is necessary.

A light sprinkling of ammonium sulfate or aluminum sulfate over the bed before using hard water helps to correct the alkaline reaction. Rain washing down the sides of a brick or stucco building may dissolve enough calcium to alter the pH of acid-soil beds into which it drains. Such situations should not be used for plantings if it is difficult to keep the soil acid.

Sulfur and aluminum sulfate

Small amounts of sulfur or aluminum sulfate (up to 2 pounds to 100 square feet) may be added to the surface of the acid-soil bed to overcome slight increases in alkalinity, but the incorporation of acid peat moss is preferred.

Fertilizers

In a properly prepared acid-soil bed, the nutrient requirements are automatically supplied by the decomposition of the organic matter. Poor growth and yellowed leaves are better remedied by improving growing conditions than by fertilization. A number of materials are reported to give improved growth when growing conditions are good. One of the best of these is an annual application of a dilute solution of sulfate of ammonia, 1 tablespoon to 12 quarts of water, sprinkled over the surface of the bed, or applied dry at the rate of $\frac{1}{2}$ pound to 100 square feet in the spring.

Tree roots

Shallow-rooted trees, such as maples and elms, often absorb so much of the available moisture that rhododendrons and azaleas planted too near them will not thrive. It would be foolish to plant a rhododendron bed under a shallow-rooted tree for this very reason. The restriction of troublesome roots by annual trenching or even by the insertion of a concrete barrier seldom is satisfactory. Successful plantings can, however, be made under deeper rooted trees, such as the oaks and hickories.

Transplanting

Ericaceous plants, particularly evergreens, should be moved with a ball of soil. Directions for transplanting are given in Cornell Extension Bulletin 185, *The Transplanting and Care of Shrubs and Trees*.

Plants for shade and acid soil

The asterisk (*) indicates outstanding value.

Creeping groundcovers

- | | |
|---|-------------------|
| <i>Chimaphila umbellata</i> Evergreen | Common Pipsissewa |
| Flower: White; spring. | |
| Special interest: Uncommon; native; suitable for rock gardens. | |
| <i>Epigaea repens</i> Evergreen | Trailing Arbutus |
| *Flower: Pink; middle April. | |
| Caution: Favorite native, but very difficult to grow. | |
| <i>Gaultheria procumbens</i> Evergreen | Wintergreen |
| Flower: White; spring. | |
| *Fruit: Red berries; fall and winter. | |
| *Special interest: Beautiful bronze-purple winter color in sun, although the plant really succeeds better in shade. | |
| <i>Gaylussacia brachycera</i> Evergreen | Box Huckleberry |
| Flower: White; spring. | |
| Fruit: Blue berries; fall. | |
| *Special interest: Foliage is small and glossy and really better in the shade. When grown in sun, it has the same beautiful winter color as <i>Gaultheria</i> . The plant comes from farther south than New York and is still rare in the trade although perfectly hardy if given proper soil conditions. | |

Mitchella repens Evergreen

Partridgeberry

Flower: White, often tinged with purple; June.

*Fruit: Red berries; fall and winter.

*Special interest: Slow-creeping groundcover; appropriate for rock garden or other small-scale situations.

Rubus hispidus Evergreen

Swamp Dewberry

Flower: Small; white; ineffective; June.

Fruit: Purple berries; August.

Special interest: Requires moisture; remains green in the shade but bronzes beautifully in the sun during fall and winter.

***Vaccinium angustifolium laevifolium* (*V. pensylvanicum*)**

Lowbush Blueberry

Flower: Small; waxy white; early May.

Fruit: Blue berries (edible); summer.

Special interest: An excellent groundcover for the woodlands, spreading slowly by underground stems; helps to hold the leaves; provides bird food; has red autumn color.

Dwarf shrubs (1½ to 3 feet)***Leucothoe catesbaei*** Evergreen

Drooping Leucothoe

Flower: White; lateral drooping clusters; late May.

*Special interest: Foliage turns a beautiful bronze-purple in full winter sun, but the plant really succeeds better in the North with some shade.

Pieris floribunda Evergreen

Mountain Andromeda

*Flower: White; terminal clusters; early May.

*Special interest: Greenish white flower buds in upright clusters, conspicuous on the plant all winter long.

***Vaccinium pallidum* (*V. vacillans*)**

Dryland Blueberry

Flower: Small; reddish to white; May.

Fruit: Blue berries (edible); summer.

Vaccinium stamineum

Deerberry

Flower: White, loose nodding clusters; late May.

Fruit: Green, finally red-purple berry in fall; not valued for food.

FIGURE 2. *KALMIA LATIFOLIA*, OR MOUNTAIN LAUREL.

This is the plant that makes such a beautiful show of pink and white in the Appalachian Mountains in June. By many it is considered the best broad-leaf evergreen for the North.



Small shrubs (below eye-level)

Daphne Mezereum

February Daphne

*Flower: Small; purple; before the leaves in early April.

*Fruit: Scarlet; attractive to birds; early fall.

Special interest: Early purple flower before Forsythia.

Caution: The stems may be girdled by a twig blight that can be reduced only by careful, sanitary pruning.

Kalmia latifolia Evergreen

Mountain laurel

*Flower: White, pink in bud; abundant; middle June.

*Special interest: The finest broad-leaf evergreen of the North; leaves do not roll up and look bad in cold weather as do those of so many broad-leaf rhododendrons.

Caution: The foliage is poisonous to livestock.

Pieris japonica Evergreen

Japanese Andromeda

*Flower: White; nodding terminal clusters; May.

*Special interest: Nodding reddish flower clusters conspicuous all winter; clusters more handsome and foliage more glossy and attractive than *P. floribunda*.Caution: This plant is not so hardy as *P. floribunda* and therefore is better in the North with some protection from winter wind and sun.**Rhododendron carolinianum** Evergreen

Carolina Rhododendron

*Flower: Rosy pink; late May.

*Special interest: The smallest and earliest of the native rhododendrons.

Rhododendron, kinds often called *Azaleas*.

*Special interest: Their value is their attractive flowers, with a wide-color range and long succession of bloom. The following selection is arranged to show time of bloom in central New York, color, and size (whether dwarf shrubs, small shrubs below eye-level, or medium shrubs above eye-level).

Time of bloom	Name	Size	Color
Middle April	<i>R. mucronulatum</i> (<i>A. dahurica mucronulata</i>)	Small	Rosy purple
Early May	<i>R. obtusum japonicum</i> " <i>Hinodegiri</i> " (<i>A. hinodegiri</i>) Evergreen	Dwarf	Red
	Caution: One of the "Kurume Azaleas," very showy but usually not hardy in central New York.		
	<i>R. Schlippenbachii</i> (<i>A. schlippenbachii</i>)	Medium	Pink
	<i>R. yedoense poukhanense</i> (<i>A. poukhanensis</i>)	Small	Lavender-purple
Middle May	<i>R. obtusum Kaempferi</i> (<i>A. kaempferi</i>)	Small	Orange-red
	<i>R. Vaseyi</i> (<i>A. vaseyi</i>)	Medium	Pink, almost white
Late May	<i>R. japonicum</i> (<i>A. japonica</i>)	Small	Salmon pink, salmon red
	<i>R. molle</i> (<i>A. mollis</i>)	Medium	Yellow
	Caution: Not quite hardy.		
	<i>R. nudiflorum</i> (<i>A. nudiflora</i>)	Small	Pale pink
	<i>R. roseum</i> (<i>A. rosea</i>)	Small	Bright pink
Early June	<i>R. calendulaceum</i> (<i>A. calendulacea</i>)	Medium	Orange to red
Late June	<i>R. arborescens</i> (<i>A. arborescens</i>)	Medium	Fragrant white
Middle July	<i>R. viscosum</i> (<i>A. viscosa</i>)	Medium	Fragrant white



FIGURE 3. RHODODENDRON VASEYI, OR PINKSHELL AZALEA

This is the daintiest of all azaleas because of its open habit of growth and its delicate pink flowers

Medium shrubs (above eye-level)

Lyonia ligustrina

Male-berry

Flower: White; June and July.

Special interest: Native; with attractive autumn color ranging from yellowish purple to red.

Rhododendron catawbiense Evergreen

Catawba Rhododendron

Flower: Lilac (magenta); early June.

Special interest: Commonly planted, but the magenta flowers do not always combine well with other colors.

Rhododendron, large-leaved evergreen hybrids.

*Special interest: A good selection should include the following types according to color and time of bloom. All are medium shrubs (above eye-level) except as noted. Early means late May, blooming with garden lilacs (*Syringa vulgaris*).

Medium means early June, blooming with sweet mockorange (*Philadelphus coronarius*)

Late means middle June, blooming with mountain laurel (*Kalmia latifolia*).

Color	Season	Name
White	Medium	<i>album elegans</i> — A large shrub (12 feet +)
	Early	Boule de Neige — a small shrub
	Medium	<i>catawbiense album</i>
Pink	Medium	Henrietta Sargent
	Early to medium	Lady Armstrong
	Medium to late	Mrs. Charles Sargent
	Medium	<i>roseum elegans</i>
Red	Early	<i>atrosanguineum</i>
	Medium to late	<i>caractacus</i> — a large shrub (12 feet +)
	Early to medium	Charles Dickens
	Late	H. W. Sargent
Purple	Early	<i>everestianum</i> (very light)
	Medium to late	<i>purpureum elegans</i> (dark)
	Medium to late	<i>purpureum grandiflorum</i> (light)

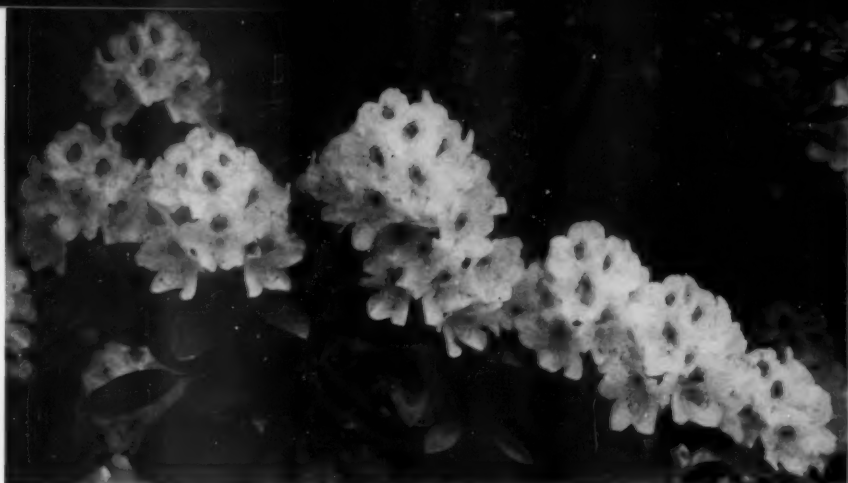


FIGURE 4. RHODODENDRON "ALBUM ELEGANS"

This large-growing, white-flowered rhododendron is an old favorite and is perfectly hardy

Vaccinium corymbosum

Highbush Blueberry

Flower: white, like lily-of-the-valley; late May.

Fruit: Blue berries (edible); early fall.

Special interest: The commercial blueberry; all blueberries have a brilliant red autumn coloration.

Large shrubs and small trees (12 to 25 feet)

Rhododendron maximum Evergreen

Rosebay Rhododendron

Flower: White, with light pink bud; late June.

*Special interest: The largest native rhododendron; blooms so late that leaf growth reduces the effect of the flowers considerably.

SHADE AND DRY SOIL

ONLY a few plants are able to withstand dry soil in shade because not only is the light necessary for the manufacture of food limited, but water is deficient as well. Soil under shallow-rooted trees often is especially dry, for the roots of these trees occupy even the surface inches of soil and remove almost all of the moisture. This dry condition is exceedingly hard to cope with, and often no plants can be grown well.

All of the plants listed stand fairly dry soil, but, of course, will not grow in dry sand. Even these plants cannot grow in certain dry situations. They surely will do better in a moist soil than in one that is very dry. Mixing organic matter into a dry soil increases its water-holding capacity. Well-rotted manure, rotted leaves, Michigan or Jersey peat moss, imported peat moss, or any of the local peats are satisfactory. A layer of organic matter from 3 to 4 inches thick may be spread over the dry ground and then thoroughly spaded in, or the organic matter may be mixed thoroughly with the soil in the individual holes where the plants are to be placed. This helps to make the soil as moist as is possible in a dry situation.

After planting, and during a dry season, the plants should be watered frequently and thoroughly. A permanent artificial mulch of peat moss or partially rotted leaves on the soil helps to conserve moisture.

Plants for shade and dry soil

The asterisk (*) indicates outstanding value.

Small shrubs (below eye-level)

Berberis Thunbergii

Japanese Barberry

Flower: Small; yellow; early May.

*Fruit: Red berries; fall and winter.

*Special interest: Round and very dense in winter and summer, with brilliant red autumn color. With its varieties, it is the only barberry immune to black stem rust of cereals.¹

Ribes alpinum pumilum

Dwarf Alpine Currant

Flower: Small; greenish; early May.

*Fruits: Bright red berries; summer and fall.

*Special interest: Leaves show green early in spring; habit is neat and dense, broader than high; berries are attractive.

Caution: All currants and gooseberries carry the white-pine blister rust, but this one is very resistant. Sexes are separate and fruiting plants should be obtained.

Symphoricarpos orbiculatus (S. vulgaris)

Coralberry

Flower: Small; pinkish; ineffective; August.

*Fruit: Red berries all along stem; fall and winter.

*Special interest: Neutral in appearance, with broad arching habit of growth; spreads by underground roots and by branches that bend down and root; effective for planting on dry banks to hold the soil.

Medium shrubs (above eye-level)

Cornus racemosa (C. paniculata)

Gray Dogwood

Flower: White, middle June.

*Fruit: White berries on pink stems; fall.

*Special interest: Pink fruit stems remain on plant all winter; all dogwoods have a red autumn color except this one which ranges towards purple; small leaves and slender twigs combine to give it the finest texture of any of the dogwoods; spreads by underground stems and soon develops into dense, billowy masses.

Physocarpus opulifolius

Ninebark

Flower: White; dense clusters like spirea; early June.

Fruit: Reddish in July, changing to brown.

Special interest: Plant is tough and coarse in appearance but good for hard situations; bark is conspicuously loose and shreddy.

Ribes odoratum

Buffalo Currant

Flower: Yellow, tubular; fragrant; early May.

Fruit: Black, edible.

Special interest: Leaves show green early in spring; flowers are attractive; autumn color is red; plant stands dry soil and hard conditions.

Caution: All *Ribes* carry the white-pine blister rust.

¹Many of the barberries and their relatives carry the black stem rust of cereals. For this reason it may be unwise to plant susceptible varieties in sections where cereals are grown.

Large shrubs and small trees (12 to 25 feet)

Hamamelis virginiana

Common Witch-hazel

*Flower: Yellow; the last shrub to flower; November.

Special interest: Small yellow flowers with ribbon-like petals borne in the fall, often after the leaves have fallen; good yellow color; plant so neutral and quiet in appearance that it can be planted in quantity without being objectionable; does best in shade.

Prunus virginiana

Chokecherry

Flowers: White; long nodding clusters; middle May.

Fruit: Dark purple berries; hanging clusters; summer.

Special interest: Berries attractive bird food.

Caution: Often badly disfigured by tent caterpillars.

Rhamnus cathartica

Common Buckthorn

Flowers: Greenish; ineffective.

Fruit: Black berries; late summer and fall.

Special interest: Good hedge plant under trying conditions.

Viburnum Lentago

Nannyberry

Flower: Small; creamy white; late May.

Fruit: Blue-black berries; fall.

Special interest: Neutral form which is open and upright; red autumn color in sun; native in many parts of the State.

SHADE AND WET SOIL

ALL plants must have a certain amount of air at their roots. This is the chief reason why so few plants are able to grow in water all the time. Most of the plants that do grow in standing water have special adaptations for obtaining air. Where there is standing water continually, only a water garden or a planting of actual bog plants will be successful.

A number of woody plants may succeed in a good spot in which there is a small amount of standing water at some time during the year, or a little flowing water all of the time (called *springy* conditions on many a hillside).

FIGURE 5. TSUGA CANADENSIS, OR CANADA HEMLOCK

This hemlock is the most graceful northern evergreen for either sun or shade. Like yew and arborvitae, it stands crowding against buildings or against hedges or other plant groups



Plants for shade and wet soil

The asterisk (*) indicates outstanding value.

Vines

Menispermum canadense

Common Moonseed

Fruit: Bluish black berries in fall.

Special interest: A vigorous twiner for foliage which resembles that of the common Dutchman's pipe (*Aristolochia durior*).

Low shrubs (below the eye-level)

Ilex glabra Evergreen

Inkberry

Fruit: Black berries in fall and winter.

Caution: Sexes separate and fruiting plants must be obtained; foliage may burn in winter under trying conditions.

Kalmia latifolia (See acid-soil list, page 9.)*Rhododendron nudiflorum* (See acid-soil list, page 9.)*Rhododendron roseum* (See acid-soil list, page 9.)

Medium shrubs (above the eye-level)

Clethra alnifolia

Summersweet

*Flower: White, fragrant; terminal spikes; late July.

Caution: When grown in the sun, the foliage may turn brown in summer because of red-spider injury; much less troubled when grown in the shade.

Cornus alba

Tartarian Dogwood

Flower: Small, white umbels; early June.

Fruit: White berries; late summer.

*Special interest: Outstanding for its red twigs and white berries; a vigorous shrub, growing in broad, mound-like masses; removal of old stems encourages the brightly colored new growth.

Cornus Amomum

Silky Dogwood

Flower: Small; white; late June.

Fruit: Blue berries; early fall.

*Special interest: Quiet neutral character and blue berries; stems not so red in winter nor foliage so vigorous as in *C. alba* and *C. stolonifera*; therefore it can be planted in much larger quantity without being objectionable.

Cornus stolonifera

Red-osier Dogwood

Flower: Small; white; late May.

Fruit: White berries; late summer.

*Special interest: All the strong qualities of *C. alba*; native.

Cornus stolonifera flaviramea

Goldentwig Dogwood

Flower: White; late May.

Fruit: White berries; late summer.

*Special interest: Outstanding yellow twigs of value to liven a dull winter landscape.

Rhododendron viscosum (See acid-soil list, page 9.)*Sambucus pubens*

Scarlet Elder

Fruit: Creamy white; upright clusters; middle May.

*Fruit: Red berries; upright clusters; early summer.

Special interest: Red fruits contrast favorably with white flowers of the common American elderberry (*S. canadensis*) when the two are planted together.

Thuja occidentalis Evergreen

American Arborvitae

Fruit: Small, brown cones.

*Special interest: Narrow, dense, upright, and will not stand dry soil; will stand crowd-

ing against buildings or in hedges or other plant groups much better than will red cedar (*Juniperus virginiana*) which, though similar in form and density, will not tolerate shade. There are many varieties of arborvitae, ranging in size from small shrubs to this plant which may eventually become a fairly large tree.

***Tsuga canadensis* Evergreen**

Canada Hemlock

Fruit: Small brown cones.

*Special interest: The most graceful northern evergreen, a tree which grows so slowly and has such small foliage and such close branching that it can be clipped into hedges or restrained regularly into beautiful bushes, either small, medium, or large.

Vaccinium corymbosum* (See acid-soil list, page 11.)**Viburnum alnifolium***

Hobbleblush

*Flower: Creamy white; flat clusters, with outer ring of showy white sterile flowers; early May.

*Fruit: First red, then purple-black berry; late summer and early fall.

Caution: This native of the Adirondacks requires cool, moist growing conditions.

Viburnum cassinoides

Withe-rod

Flower: Small; creamy white; middle June.

*Fruit: Berries; changing colors; late summer and early fall.

Special interest: Color of the fruit matures from a yellow-green to pink to blue-black; often interesting because fruits of more than one color may be present at the same time.

Viburnum dentatum

Arrowwood

Flower: Small; creamy white; middle June.

Fruit: Blue-black; fall and winter.

*Special interest: Glossy foliage, turning a brilliant red in the fall; dense enough for hedge or screen planting.

***Viburnum pubescens* Canby (*V. venosum* canbyi)**

Canby Viburnum

Flower: Creamy white; late June.

Fruit: Blue-black berries; fall.

*Special interest: Just as effective as *V. dentatum* but blooms later; leaves broader, and fruit clusters larger.

Large shrubs and small trees (12 to 25 feet)***Lindera Benzoin* (*Benzoin aestivale*)**

Spicebush

*Flower: Small; yellow; effective; before the leaves in middle April.

*Fruit: Red berries; late summer.

Special interest: Early flower, bright fruits, and a good yellow autumn color; leaves and twigs fragrant when crushed.

Caution: The sexes are separate and both should be planted because the staminate plants are more showy in flower and yet the pistillate plants are necessary for fruits.

Rhododendron maximum* (See acid-soil list, page 11.)*SHADE AND NORMAL SOIL**

THE group for shade and normal soil contains the largest number of plants. The soil should be a good garden loam, just the kind of soil in which vegetables would grow if it were in the sun. To the following list may be added most of the plants that withstand either dry or wet soil in the shade.

Plants for shade and normal soil

The asterisk (*) indicates outstanding value.

Vines

- Akebia quinata*** Semi-evergreen Five-leaf Akebia
 Flower: Small; slender; purplish; fragrant; May.
 Fruit: A fleshy pod; seldom fruits in New York.
 Special interest: A graceful hardy, twining vine with small, thick, leathery, and semi-evergreen leaflets; in northern screen plantings, often substituted for the less hardy *Lonicera japonica* Halliana. (See figure 6.)
- Celastrus orbiculatus*** Oriental Bittersweet
 *Fruit: Yellow and red berries; fall and winter.
 Special interest: An excellent twining vine planted for its fruit, which is borne in lateral clusters; yellow capsules drop easily, exposing red fleshy aril surrounding seeds.
- Celastrus scandens*** American Bittersweet
 *Fruit: Orange berries; fall and winter.
 Special interest: A native, fruit borne in terminal clusters; capsules do not drop.
 Caution: All *Celastrus* have sexes on separate plants, but a few male flowers still develop on fruiting plants and produce enough pollen so that only fruiting plants (female) need to be planted. Plants need some support about which the stems may twine.
- Clematis dioscoreifolia robusta* (*C. paniculata*)** Semi-evergreen Sweet Autumn Clematis
 *Flower: White; abundant; fragrant; September.
 Fruit: Brown seeds, each ending in a long plummy style; fall.
 Special interest: One of the best fall-blooming vines. If this plant is to climb, it needs some support about which the stalks of the leaves may twist.
- Euonymus Fortunei Carrierei* (*E. radicans carrierei*)** Evergreen Glossy Wintercreeper
***Euonymus Fortunei radicans* (*E. radicans*)** Evergreen Wintercreeper
***Euonymus Fortunei vegetus* (*E. radicans vegetus*)** Evergreen Bigleaf Wintercreeper
 Flower: Small; greenish; ineffective.
 *Fruit: Pink and orange berries; fall and winter.
 Special interest: The showy pink and orange fruits are much like those of bitter-

FIGURE 6. *AKEBIA QUINATA*, OR FIVE-LEAF AKEBIA

This excellent but little-used vine is good in shade. The leaves are thick, firm, semi-evergreen, and very dainty in texture



sweet (*Celastrus*). All three forms of this wintercreeper climb on brick and stone by root-like holdfasts. They become small bushy shrubs (3 to 4 feet) when no climbing surface is available.

Caution: The large-leaved varieties *Carrierei* and *vetulus* develop fruits, but the small-leaved variety *radicans* never does.

***Hedera Helix* Evergreen**

English Ivy

Flower: Greenish yellow, ineffective.

*Special interest: A fine evergreen vine that also makes an excellent groundcover.

Caution: This plant is not quite hardy North; succeeds on walls, tree trunks, and the like, if given winter shade; will even succeed in the sun if given warm, congenial soil, and winter mulch to prevent deep freezing of the roots.

Hydrangea petiolaris

Climbing Hydrangea

Flower: White; flat clusters with an outer ring of showy sterile flowers; early June.

*Special interest: An outstanding deciduous plant that climbs vigorously by root-like holdfasts on a solid surface; foliage good; flowers very showy. It becomes a small, bushy shrub when no climbing surface is available.

***Lonicera japonica Halliana* Semi-evergreen**

Hall Japanese Honeysuckle

*Flower: Fragrant; pure white, maturing to yellow; late June.

Fruit: Black berries; fall.

Special interest: A Japanese plant escaped from cultivation; common in the East from New York to Florida; winter foliage bronze in the full sun climbs by twining.

Caution: This plant kills to the ground in cold winters. In the southern part of the State it is often so vigorous that it becomes a pest.

Lonicera sempervirens

Trumpet Honeysuckle

*Flower: Scarlet; trumpet-like in terminal clusters; summer.

Fruit: Red berries; late summer.

Special interest: Climbs by twining; a southern plant, but apparently hardy here; slender attractive flowers all summer; makes a small, bushy shrub (3 to 4 feet) when there is no support for climbing.

Parthenocissus (Ampelopsis) quinquefolia

Virginia Creeper

*Fruit: Black berries; fall.

*Special interest: Outstanding for its brilliant red color in early fall. Needs a wall or tree trunk for climbing.

Creeping groundcovers

***Euonymus obovatus* Evergreen**

Running Euonymus

Flower: Small; greenish; ineffective.

Fruit: Red and scarlet berries; fall and early winter.

Special interest: Leaves appear early in the spring just as they do in Japanese barberry and in honeysuckles; border planting with azaleas may produce a good contrast and background for these early flowers; fruit similar to that of bittersweet (*Celastrus*) but not abundant.

***Hedera Helix* (See above.)**

***Lonicera japonica Halliana* (See above.)**

***Mahonia repens* Evergreen**

Creeping Hollygrape

Flower: Small; yellow; early May.

Fruit: Blue berries; late summer and fall.

Special interest: Evergreen foliage bronzes nicely in winter sun.

Caution: This is the smallest and hardiest *Mahonia* in eastern plantings, but does best in a sheltered situation; only partly resistant to wheat rust. (See footnote, page 12.)

***Pachistima Canbyi* Evergreen**

Canby Pachistima

Flowers: White; small.

Fruit: Of no value.

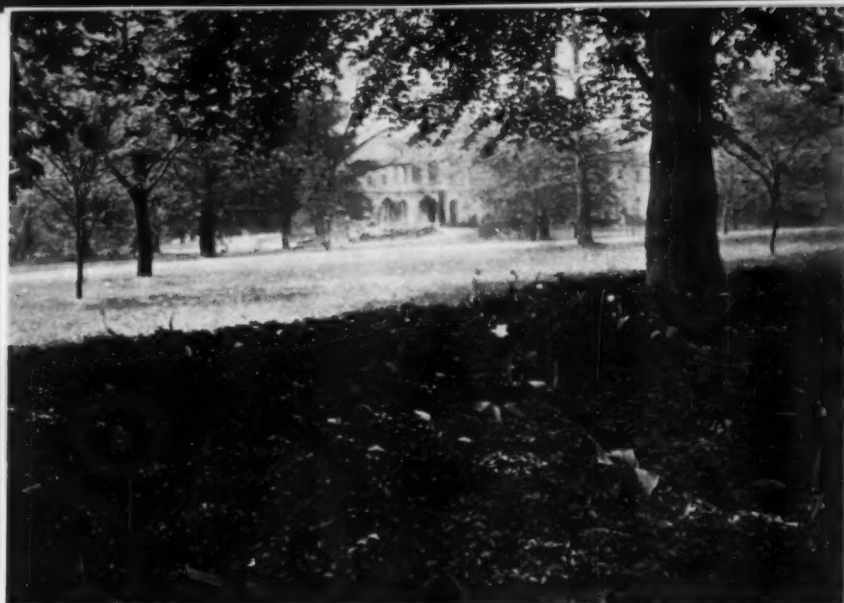


FIGURE 7. *PACHYSANDRA TERMINALIS*, OR JAPANESE SPURGE, GROWING UNDER A BEECH TREE

A good solution for a spot where no grass will grow is Japanese spurge. No mowing is necessary and bulbs can be interplanted to give an interesting spring effect

Special interest: A neat plant with tiny leaves which turn reddish purple in winter sun.

Pachysandra terminalis Evergreen

Japanese Spurge

Flower: White spikes; May.

Fruit: Pearly white berries; terminal clusters; rare; summer.

*Special interest: One of the best, most serviceable evergreen groundcovers; grows best in shade, especially under trees where grass will not grow, unless the soil is too dry; makes a fine carpet for spring bulbs coming through.

Vinca minor Evergreen

Common Periwinkle

*Flower: Blue; late April.

Special interest: One of the best and most widely-used evergreen groundcovers; like *Pachysandra*, grows better in shade; leaves darker and growth denser; in the sun foliage not so yellow-green as in *Pachysandra*.

Dwarf shrubs (1½ to 3 feet)

Berberis triacanthophora Evergreen

Threespine Barberry

Flower: Yellow; May.

Fruit: Blue-black berries; fall and winter.

Special interest: One of the most hardy of evergreen barberries.

Caution: This plant may need some protection in central New York; only partly resistant to wheat rust. (See footnote, page 12.)

Berberis verruculosa Evergreen

Warty Barberry

Flower: Yellow; May.

Fruit: Blue-black berries; fall and winter.

Special interest: Foliage evergreen, dark, and glossy above, white beneath with attractive reddish tints in fall and winter.

Caution: This plant is not absolutely hardy in central New York and is only partly resistant to wheat rust. (See footnote, page 12.)

***Diervilla lonicera* (*D. trifida*)**

Dwarf Bush-honeysuckle

Flower: Small; yellow; ineffective; June.

*Special interest: Excellent plant to bind the soil along trails and banks because it spreads rapidly by underground stems and is so low that it does not interfere with views; prefers some shade.

Euonymus Fortunei radicans* (See page 16.)**Hydangea arborescens grandiflora***

Snowhill Hydrangea

*Flower: Double white flowers; ball-like clusters; July.

Special interest: The best small shrub for large, white flower in summer; should be treated as an herbaceous perennial by cutting the stems to the ground each fall.

Hydrangea petiolaris* (See page 17.)**Hydrangea quercifolia***

Oakleaf Hydrangea

Flower: Seldom develops in the North; creamy white; large clusters, with many showy white sterile flowers.

Special interest: A plant for bold foliage effects.

Caution: This southern plant seldom blooms in the North; if pruned to the ground each spring, it produces a handsome dense foliage mass from 3 to 4 feet high.

***Hypericum frondosum* (*H. aureum*)**

Golden St. Johnswort

*Flower: Showy yellow flowers; late July.

Special interest: The timely effect of yellow flowers in summer; dense form; dull-green foliage.

***Leiophyllum buxifolium* Evergreen**

Box Sandmyrtle

Flower: Small; white, interesting; late May.

Special interest: A small, compact evergreen for dwarf situations.

***Leucothoe catesbaei* (See acid-soil list, page 8.)**

This plant has been thought to prefer acid-soil, but it will probably thrive in neutral soil which is well drained but which contains enough humus material to keep the soil moist and well aerated.

Lonicera sempervirens* (See page 17.)**Pieris floribunda* (See acid-soil list, page 8.)**

This plant has been thought to prefer acid-soil, but probably it will thrive in neutral soil which is well drained but which contains enough humus material to keep the soil moist and well aerated.

Potentilla fruticosa

Shrubby Cinquefoil

*Flower: Yellow; middle June.

Special interest: flowers at a time when flowering shrubs are scarce; a white variety is called *Veitchii*.

***Taxus baccata repandens* Evergreen**

Spreading English Yew

Flower: Small; greenish yellow; ineffective.

Fruit: Red berries; fall and winter.

*Special interest: Only variety of English Yew much used North; habit broad and arching; the only *Taxus* that will produce a low, fountain-like effect.

Caution: This plant is not quite hardy and is much better with some protection, if nothing more than winter shade.

Note: *Taxus* as a group has the darkest green winter foliage of any northern narrow-leaf evergreen and this becomes more evident in the shade. *Taxus* is like *Thuja* in that it will stand shade and crowding well. It can be planted close to other plants or close against walls and still grow well and retain its effectiveness. For this reason, *Taxus* and *Thuja* are better for hedges and close planting than are such other evergreens as *Juniperus*. The fruits of all *Taxus* are effective, but the sexes are separate and therefore both male and female plants should be used to insure fruiting. All will stand heavy clipping.

***Taxus canadensis* Evergreen**

Canada Yew

Flower: Small; greenish yellow; ineffective.

Fruit: Red berries; fall and winter.

Special interest: A native evergreen which really grows and looks better in shade; low and spreading; sometimes called *ground hemlock* because it grows close to the ground and looks like hemlock; use limited both to shade and low plantings.

Low shrubs (below eye-level)***Abelia grandiflora* Semi-evergreen**

Glossy Abelia

*Flower: Petals white, sepals purplish; July and August.

*Special interest: Very graceful, making good neutral "filler" with glossy foliage and small, but abundant, fragrant, white flowers all summer.

Caution: This plant may kill to the ground north of New York City, but will grow again if the roots are well mulched. Useful in central New York but in a smaller size.

Aronia melanocarpa

Black Chokeberry

Flower: White; early May.

*Fruit: Black berries; fall and winter.

Caution: Sometimes troubled by blight and borer injury.

***Berberis Julianae* Evergreen**

Wintergreen Barberry

Flower: Yellow; May.

Fruit: Blue-black berries; fall and winter.

Special interest: One of the most hardy evergreen barberries.

Caution: This plant may need some protection in central New York; only partly resistant to wheat rust. (See footnote, page 12.)

***Buxus microphylla japonica* Evergreen**

Japanese Box

Special interest: A little more hardy than the common box (*B. sempervirens*); foliage more yellow-green.

***Buxus sempervirens* Evergreen**

Common Box

Caution: Not quite so hardy as *B. microphylla japonica*. Some protection is needed for all forms of box in northern plantings; even partial shade in the winter is helpful.

***Cotoneaster salicifolia floccosa* Evergreen**

Willowleaf Cotoneaster

Flower: Small; white; in clusters; late June.

*Fruit: Orange berries; fall and winter.

*Special interest: The best evergreen Cotoneaster for the North because of good foliage and handsome berries.

Caution: All Cotoneasters are subject to the same troubles as apples, that is, blight, borers, and scale. Winterkilled in 1933-34 at Cornell.

Euonymus Fortunei Carrierei* (See page 16.)**Euonymus Fortunei vegetus* (See page 16.)*****Hypericum prolificum***

Shrubby St. Johnswort

*Flower: Showy; yellow; late July.

Special interest: Similar to *H. frondosum* except that the foliage is smaller and is glossy green.

***Ligustrum obtusifolium Regelianum* (*L. ibota regelianum*)**

Regel Privet

Flower: Creamy white; small clusters; late June.

*Fruit: Blue-black berries; fall and winter.

*Special interest: Interesting horizontal growth and a mass of blue-black berries all winter; most attractive of all the deciduous privets.

Caution: This plant should be grown from cuttings and not from seed, to preserve the special low horizontal growth.

Ligustrum ovalifolium

California Privet

Flower: Creamy white; upright terminal clusters; middle July.

Fruit: Black berries; seldom fruits in North.

Special interest: Dense and much used for hedges; leaves remain green into the winter, often turning purplish.

Caution: This plant is continually killed back by severe winters in the North; grows much larger in the South.

Lonicera canadensis

American Fly Honeysuckle

Flower: Small; white; early May.

Fruit: Red berries; summer.

*Special interest: A native; one of the first shrubs to show fresh green foliage in the spring. Prefers shade.

Mahonia Aquifolium Evergreen

Oregon Hollygrape

Flower: Small; yellow; early May.

Fruit: Blue berries; late summer and early fall.

Special interest: The foliage turns a beautiful red-bronze in winter sun.

Caution: This plant does best with some winter shade, for the leaves may be killed by winter drying; partly resistant to wheat rust. (See footnote, page 12.)

Pieris japonica (See acid-soil list, page 9.)

This plant has been thought to prefer acid soil, but probably it will thrive in neutral soil which is well drained but which contains enough humus material to keep the soil moist and well aerated.

Rubus odoratus

Flowering Raspberry

Flower: Large; light purple; early June.

Fruit: Red raspberries; summer.

Special interest: A coarse shrub with large, maple-like leaves; really does better in shade.

***Stephanandra incisa* (*S. flexuosa*)**

Cutleaf Stephanandra

Flower: White; loose, terminal clusters; June.

Special interest: Graceful both in flower and foliage.

Caution: The twigs kill back slightly in winter; also, sometimes it is troubled by a twig blight.

***Symphoricarpos albus laevigatus* (*S. racemosus laevigatus*)**

Snowberry

Flower: Small; pinkish; ineffective; middle July.

*Fruit: White berries; fall and early winter.

Special interest: An old-fashioned shrub still valuable for its abundant white berries which finally turn buff or light brown.

Caution: A disease often disfigures both fruit and foliage; there is no good method of control.

Taxus cuspidata nana Evergreen

Dwarf Japanese Yew

Flower: Small; greenish yellow; ineffective.

Fruit: Red berries; fall and winter.

*Special interest: A dwarf plant; dense; the best hardy evergreen to use as a substitute for boxwood in the North; color of foliage and fruit excellent (see note under *T. baccata repandens*); plant may be clipped as much as desired; when not restrained, develops slowly into a broad plant two or three times as wide as high.***Viburnum acerifolium***

Mapleleaf Viburnum

Flower: Small; creamy white; middle June.

Fruit: Black berries; fall.

*Special interest: One of the few plants that apparently thrives in the shade; small in size, an ideal plant for woodland cover; autumn color purplish or even pale rose.



FIGURE 8. *TAXUS CUSPIDATA NANA*, OR DWARF JAPANESE YEW

Taxus has excellent, dark-green foliage and is one of the very best narrowleaf evergreens for the North. The variety is dense and low-growing

Medium shrubs (above eye-level)

Acanthopanax Sieboldianus (*A. pentaphyllum*) Fire-leaf Aralia

*Special interest: Essentially a good foliage plant; leaves resemble those of Virginia Creeper but leaflets are smaller and of a finer texture; this, with the good green color, makes the plant effective. Thrives in shade.

Aronia arbutifolia Red Chokeberry

Flower: White; May.

*Fruit: Red berries; fall and winter.

Special interest: Very effective fruit.

Caution: This plant is sometimes injured by blight and borer.

Chaenomeles lagenaria (*Cydonia japonica*) Flowering Quince

*Flower: Typically red, with many colored varieties; early May.

Fruit: Quince-like and ineffective.

Special interest: Foliage dark and glossy; an old hedge plant much used before the introduction of Japanese barberry.

Caution: The plant is subject to blight and scale.

Cornus rugosa Roundleaf Dogwood

Flower: Creamy white; umbrella-like clusters; June.

Fruit: White berries; fall.

Special interest: Large handsome foliage like that of *C. alba* or *C. florida*; reddish in fall; does best in shade.

Forsythia suspensa Weeping Forsythia

*Flower: Yellow; middle April.

Special interest: A very graceful plant with drooping branches that may root when they touch the ground; chief value is its golden-yellow flowers in early spring before the leaves are out; plant makes a fine, rounded, foliage mass.

Hamamelis vernalis Vernal Witch-hazel

*Flower: Small; yellow; fragrant; February.

Special interest: Used particularly for its early flowers that open and shut with weather changes; habit of growth similar to that of *H. mollis* and *H. virginiana*, and like them, thrives in shade.



FIGURE 9. VIBURNUM ACERIFOLIUM, OR MAPLELEAF VIBURNUM

This small viburnum and the larger witch-hazel (*Hamamelis*) are among the most serviceable shrubs for woodland plantings. Both are quiet and neutral in habit of growth

***Ilex crenata microphylla* Evergreen**

Littleleaf Japanese Holly

Flower: Small; greenish yellow; ineffective.

Fruit: Black berries; fall and winter.

Special interest: Foliage small, like that of boxwood, but habit of growth more open and informal.

Caution: This plant is not quite hardy North, but is more hardy than *I. crenata*; it is best in a sheltered situation, a warm congenial soil; the sexes are separate, and both male and female plants are required for fruiting.

Ligustrum amurense

Amur Privet

Flower: Creamy white; small lateral clusters; June.

Fruit: Blue-black berries; fall and winter.

*Special interest: The best, hardy, upright privet for New York State.

FIGURE 10. ACANTHOPANAX SIEBOLDIANUS, OR FIVE-LEAF ARALIA

The leaves of this shrub are glossy and resemble those of Virginia creeper. It is an excellent foliage plant for shade



Ligustrum vulgare

European or English Privet

Flower: Creamy white; upright terminal clusters; late June.

*Fruit: black, shining berries; upright clusters; fall and winter.

Special interest: An excellent hedge plant with almost semi-evergreen foliage.

Caution: This plant is subject to a serious twig blight for which no satisfactory control has been found.

Lonicera fragrantissima Semi-evergreen

Winter Honeysuckle

*Flower: Small; creamy-white; very fragrant; early April.

Fruit: Red berries; seldom developing.

*Special interest: Good form, firm, leathery, and semi-evergreen foliage.

Caution: This plant is not always entirely hardy in central New York.

Lonicera Morrowii

Morrow Honeysuckle

Flower: Yellowish white; late May.

*Fruit: Dark red berries; early July.

Special interest: A favorite in landscape planting because it makes a broad dense mass twice as wide as high; a neutral gray-green color; faces perfectly to the ground; berries abundant and attractive in summer.

Lonicera tatarica

Tartarian Honeysuckle

*Flower: White; late May.

Fruit: Red berries; early July.

Special interest: An excellent general-utility plant; perfectly hardy, a vigorous grower under various soil conditions; good flower and fruit; satisfactory neutral foliage; an old reliable type that has been planted as has the lilac and the mockorange; best varieties for flowers are *elegans* (white) and *sibirica* (deep pink). The best type for fruit is a hybrid called *L. bella rosea*, with light-pink flowers and red fruits so abundant that branches are literally weighed down with them.***Lycium halimifolium*** (often used as a vine)

Common Matrimony vine

Flower: Small; purple; opening all summer.

*Fruit: Red berries; effective; late summer and fall.

Special interest: An old favorite pillar plant for porch or screen planting, but really a vigorous shrub with long arching branches like those of *Forsythia suspensa*; excellent for holding the soil on banks; sometimes becomes a nuisance in other situations because it spreads so vigorously; foliage semi-evergreen or nearly so.

Caution: Sometimes the foliage is spoiled by red spider.

Philadelphus coronarius

Sweet Mockorange

*Flower: White; fragrant; middle June.

*Special interest: An old favorite in American gardens since Colonial days; dense, vigorous, succeeds even under trying city conditions; the best of all the large-growing mockoranges.

Pyracantha coccinea Lalandii Evergreen

Laland Firethorn

Flower: Small; white, in clusters; June.

*Fruit: Orange-red berries; abundant; fall and winter.

Caution: This plant is somewhat tender; in northern plantings it is often trained against walls with more success; it is a member of the same family as the apple and so is subject to blight, borer, and scale.

***Rhodotypos tetrapetala* (*R. scandens*, *R. kerrioides*)**

Jetbead

Flower: White; middle May.

*Fruit: Black, hard, and shiny berries; fall and winter.

Special interest: Black shiny fruits interesting all winter; flowers like small, single white roses.

Taxus cuspidata Evergreen

Japanese Yew

Flower: Small; greenish yellow; ineffective.

*Fruit: Red berries; fall and winter.

*Special interest: A beautiful, narrow-leaved evergreen; effective either as a specimen or in trimmed hedges.

Caution. The sexes are separate. (See discussion page 19.)

The Japanese yew is a beautiful, narrow-leaf evergreen that may be broad and spreading (offered by some nurseries as "flat form") or upright and fast growing (offered by some nurseries as variety "capitata"). Both of these variations appear when the plant is grown from seed, and the spreading form may grow into the upright, tree-like form unless propagated by cuttings.

***Taxus media Hicksii* Evergreen**

Hicks Yew

Flower: Small; greenish yellow; ineffective.

*Fruit: Red berries; fall and winter.

*Special interest: A narrow and upright plant with good foliage and fruit.

Caution: The plant is very positive in form and structurally is weak because it is like a bush folded up; where ice and snow are troublesome, the plant should be pruned to one stem or otherwise protected to prevent breaking. *T. cuspidata* "capitata" is a better choice for such a situation.

Viburnum Opulus

European Cranberrybush

*Flower: Creamy white; in flat clusters with outer ring of showy white sterile flowers; early June.

*Fruit: Red fleshy berries; fall and winter.

*Special interest: The best large deciduous shrub with red berries all through the winter.

Large shrubs and small trees (12 to 25 feet)

Acer pensylvanicum

Striped Maple

Special interest: Large, shallow-lobed leaves like a goose's foot; yellow autumn color; green stems with white stripes are attractive in winter. Better in shade than in sun.

Amelanchier canadensis

Downy Shadblow

*Flower: White; of short duration; early May.

Fruit: Red berries; early summer. A favorite bird food.

Amelanchier laevis

Allegheny Shadlow

*Flower: White, of short duration; early May.

Fruit: Red berries; early summer. A favorite bird food.

Cercis canadensis

American Redbud

*Flower: Rosy purple; pea-like flowers; early May.

Fruit: Brown, flat pods.

Special interest: Effective yellow autumn color in addition to early purple flowers; pea-like flowers crowded close along the dark stems before any leaves appear. Combines well with flowering dogwood both in spring and fall.

***Chamaecyparis obtusa* Evergreen**

Hinoki Cypress

Fruit: Small cones.

Special interest: Resembles arborvitae (*Thuja*) but foliage is darker and more glossy.

Caution: This plant is not quite hardy North; probably better with a warm congenial soil and a somewhat sheltered situation.

Cornus alternifolia

Pagoda Dogwood

Flower: Small; white; in clusters; early June.

Fruit: Blue berries; late summer and fall.

Special interest: Very picturesque horizontal growth of the branches.

Caution: This plant is subject to a serious twig blight; not nearly so effective as *C. florida*.

Cornus florida

Flowering Dogwood

*Flower: Large; white; middle May.

*Fruit: Red berries; fall. A favorite bird food.

*Special interest: A favorite native plant outstanding either in the sun or shade; branching very horizontal. There is a pink variety (*C. florida rubra*).

Cornus mas

Cornelian Cherry

*Flower: Small; yellow; effective; early April.

*Fruit: Red and cherry-like; late summer. A favorite bird food.

Special interest: Dense and round, making a good screen; flowers small but abundant and appear early, before Forsythia.

Hamamelis mollis

Chinese Witch-hazel

*Flower: Petals golden yellow, reddish at the base; sepals reddish purple; March.

Special interest: Very early yellow flower; otherwise very similar to *H. virginiana*.***Ilex opaca*** Evergreen

American Holly

Flower: Small; greenish yellow; ineffective.

*Fruit: Red berries; abundant; fall and winter.

Caution: The sexes are separate, and both male and female plants are required for fruiting; this plant is a favorite native evergreen near the Coast and in the South; seems to require well-drained soil in the North; usually difficult to transplant.

***Magnolia virginiana* (*M. glauca*)** Semi-evergreen

Sweetbay

Flower: White; effective; not abundant; continue to open for a long time; June and July.

Fruit: Red; not effective in mass; fall.

Special interest: A native; bushy and semi-evergreen on Cape Cod, but becomes tree-like and evergreen in the South; not so dense as the commonly planted, early-flowering magnolias.

Oxydendrum arboreum

Sourwood

*Flower: White; in nodding terminal clusters; late July.

*Fruit: Tan capsules; fall and winter.

*Special interest: A graceful, airy small tree from the South; glossy dark-green, laurel-like leaves that turn a gorgeous red in the fall; flowers white (like lily-of-the-valley) in summer in nodding terminal clusters.

Caution: This plant is hardy in central New York in a light, well-drained soil.

Thuja occidentalis (See wet-soil, page 14.)

FIGURE 11. A DENSE, LOW-BRANCHED TREE WITH SHALLOW ROOTS

The conditions under this beech tree are too dark and too dry for any plants to grow. If the branches were not so low, it might be treated as in figure 7



Thuja orientalis Evergreen

Oriental Arborvitae

Fruit: Small cones; bluish white young.

Special interest: Similar to *T. occidentalis* but more handsome, with smaller foliage; many varieties.

Caution: This plant succeeds in the North only in sheltered situations and in well-drained soil unless grown by cuttings from individual plants that have proved to be more hardy than the type.

Thuja plicata Evergreen

Giant Arborvitae

Fruit: Small; Brown cones; ineffective.

*Special interest: A promising new type from the West Coast; faster and larger growing than *T. occidentalis*, foliage more glossy, with a fine bronzy appearance in the winter sun.

Caution: Vigorous shoots may be killed back under some conditions.

Viburnum prunifolium

Blackhaw

Flower: Creamy white; late May.

Fruit: Blue-black berries; late summer and fall.

*Special interest: Dense horizontal growth and effective red autumn color; resembles hawthorn and the bushy crabapples but has none of the troubles (blight, borer, cedar rust, and scale) so common in both *Crataegus* and *Malus*.

Large trees (50 to 100 feet)

Tsuga caroliniana Evergreen

Carolina Hemlock

Fruit: Some cones that are twice as large as those of *T. canadensis*.Special interest: Just as good as *T. canadensis* (see wet-soil group, page 15), with even more interesting foliage, because spray is not so flat; leaves spread more uniformly all around the twig as in spruce; this, with the drooping branches, make the whole effect even more soft and feathery. Can also be used in various sizes.

GRASS FOR SHADY PLACES

MOST lawns are largely Kentucky bluegrass, a grass which will not survive in shade. Where a lawn is shaded by a building or a wall, one of the red fescues (Chewings, creeping red, Illahee, Trinity) usually is satisfactory unless the soil is very moist. The best grass for moist shade is *trivialis* bluegrass (*Poa trivialis*). These two grasses (red fescue and *trivialis* bluegrass) should be the main constituents of a seed mixture for shady places.

The red fescues are particularly valuable for their ability to withstand dry soil and rather heavy shade, and are about the only grasses with much chance to survive under dense and shallow-rooted trees.

The details of soil preparation, seeding, and caring for grasses in shade are discussed in Cornell Extension Bulletin 469, *The Home Lawn*.

If a red fescue or *trivialis* bluegrass will not grow well after it has been given a fair trial under good soil conditions, a good groundcover plant should be chosen. The best of these groundcovers are Japanese spurge (*Pachysandra terminalis*, page 18), English ivy (*Hedera Helix*, page 17),

and common periwinkle (*Vinca minor*, page 18). These plants need the carefully prepared soil conditions suggested for plants in shade and dry soil. Some places, as under Norway maple between sidewalks and the street, may be too difficult for any plants. Here the only alternative is to cover the area with flagstones or coarse gravel; either would look better than bare ground.

RELATED BULLETINS

The planting and care of shrubs and trees. By Donald J. Bushey. Cornell Extension Bulletin 185.

Pools for home grounds. By Donald J. Bushey. Cornell Extension Bulletin 265.

The rock garden. By Henry T. Skinner. Cornell Extension Bulletin 403.

The home lawn. By John F. Cornman. Cornell Extension Bulletin 469.

Shade trees for the home lawn. By Donald J. Bushey. Cornell Extension Bulletin 724.

Landscaping steep slopes. By Donald J. Bushey. Cornell Extension Bulletin 749.

Border plantings and outdoor living rooms for rural and urban properties. By Donald J. Bushey. Cornell Extension Bulletin 813.

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